



MATERIAL PROPERTY DATA

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## GE Plastics ULTEM 1000 Polyetherimide (North America)

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[Material](#)**Subcategory:** Polyetherimide; Polymer; Thermoplastic**Material Notes:**

Information provided by GE Plastics for their North American product line. MatWeb has a separate entry for the E data sheet.

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Physical Properties	Metric	English	Comments
Density	1.27 g/cc	0.0459 lb/in <sup>3</sup>	ASTM D1505
Water Absorption	0.25 %	0.25 %	24 hours @ 73F; ASTM D543
Water Absorption at Saturation	1.25 %	1.25 %	Equilibrium, 73F; ASTM D543
Linear Mold Shrinkage	0.005 - 0.007 cm/cm	0.005 - 0.007 in/in	Flow, 0.125 inch; ASTM D955
Melt Flow	9 g/10 min	9 g/10 min	337C/6.6 kgf; ASTM D1238
<b>Mechanical Properties</b>			
Hardness, Rockwell M	109	109	ASTM D785
Tensile Strength @ Yield	110 MPa	16000 psi	Type I, 0.2 in/min; ASTM D638
Elongation at Break	60 %	60 %	Type I, 0.2 in/min; ASTM D638
Elongation at Yield	7 %	7 %	Type I, 0.2 in/min; ASTM D638
Tensile Modulus	3.59 GPa	520 ksi	0.2 in/min; ASTM D638
Flexural Modulus	3.52 GPa	510 ksi	0.10 in/min, 4" span; ASTM D790
Flexural Yield Strength	165 MPa	24000 psi	0.10 in/min, 4" span; ASTM D790
Poisson's Ratio	0.36	0.36	ASTM D638
Izod Impact, Unnotched	13.3 J/cm	25 ft-lb/in	73F; ASTM D256
Gardner Impact	36.6 J	27 ft-lb	73F; ASTM D256
Taber Abrasion, mg/1000 Cycles	10	10	CS-17, 1 kg; ASTM D4060

Izod Impact, Notched	<u>0.534 J/cm</u>	1 ft-lb/in	73F; AS
Izod Impact, Notched	<u>13.3 J/cm</u>	25 ft-lb/in	Reverse Notched, 73F;

**Electrical Properties**

Volume Resistivity	<u>1e+017 ohm-cm</u>	1e+017 ohm-cm	AS
Dielectric Constant	3.15	3.15	100 Hz; AS
Dielectric Constant	3.15	3.15	1 kHz; AS
Dielectric Strength	<u>19.7 kV/mm</u>	500 V/mil	in oil, 125 mils; AS
Dielectric Strength	<u>28 kV/mm</u>	710 V/mil	in oil, 62 mils; AS
Dielectric Strength	<u>32.7 kV/mm</u>	831 V/mil	in air, 62 mils; AS
Dissipation Factor	0.0012	0.0012	1 kHz; AS
Dissipation Factor	0.0015	0.0015	100 Hz; AS
Dissipation Factor	0.0025	0.0025	2450 MHz; AS
Arc Resistance	120 - 180 sec	120 - 180 sec	Tungsten (+/- 0.125 in Code 5; AS
Comparative Tracking Index	100 - 175 V	100 - 175 V	(+/- 0.125 inch); PL
Hot Wire Ignition, HWI	60 - 120 sec	60 - 120 sec	(+/- 0.125 inch); PL
High Amp Arc Ignition, HAI	15 - 30 arcs	15 - 30 arcs	Surface (+/- 0.125 in Code 3;
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80 mm/min	1 - 3.15 in/min	(+/- 0.125 inch); PL

**Thermal Properties**

CTE, linear, 212°F (100°C)	<u>54 µm/m-°C</u>	30 µin/in-°F	Cross Flow; 0F to 300
CTE, linear, 212°F (100°C)	<u>55.8 µm/m-°C</u>	31 µin/in-°F	Flow, 0F to 300F; AS
Thermal Conductivity	<u>0.22 W/m-K</u>	1.53 BTU-in/hr-ft²-°F	AS
Deflection Temperature at 0.46 MPa (66 psi)	<u>210 °C</u>	410 °F	0.250 inch, unanneal
Deflection Temperature at 1.8 MPa (264 psi)	<u>201 °C</u>	394 °F	0.250 inch, unanneal
Vicat Softening Point	<u>219 °C</u>	426 °F	Rate B; ASTI
UL RTI, Electrical	<u>170 °C</u>	338 °F	
UL RTI, Mechanical with Impact	<u>170 °C</u>	338 °F	
UL RTI, Mechanical without Impact	<u>170 °C</u>	338 °F	
Flammability, UL94	V-0	V-0	5VA;
Flammability, UL94	V-0	V-0	
NBS Smoke Density	0.7	0.7	Flaming, Ds 4 min; AS
NBS Smoke Density	30	30	Flaming, Dmax 20 min
Oxygen Index	<u>47 %</u>	47 %	ASTI

**Descriptive Properties**

CSA File No.  
UL File Number, USA

LS88480  
E121562



Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent manner. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversion factors and equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also advise that you refer to MatWeb's disclaimer and terms of use regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally reported into MatWeb.



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